PERCEIVED CONSUMER EFFECTIVENESS IN INDIAN MARKET: AN ANALYSIS

Karnika Gupta[*] and Narendra Singh[**]

ABSTRACT

This paper examined perceived consumer effectiveness, and objectively worked upon investigating levels and segments of consumers as per construct. For the same, data from 300 respondents was collected and analyzed. Principal Component Analysis suggested that construct PCE was firmly measured by the statements. Descriptive statistics investigated a moderate level of perceived consumer effectiveness among Indian consumers. Further, Cluster Analysis suggested two segments designated as effective and ineffective in this paper. Effective segment has high PCE in comparison with ineffective segment, as analyzed by inferential statistics of z-test for difference between two means. Owing to findings, the requirement of a law for "protection by consumers" is implied, and further research directions are suggested.

Key words: Perceived Consumer Effectiveness, Effective, Ineffective, Segments

INTRODUCTION

The realities around us establish a fact that the Earth is undergoing ecological crisis. As a reason, it does not need any justification that contemporary ways of human living has a negative effect on natural environment and responsible for natural calamities (Singh and Gupta, 2013). However, it is too veritable to say that as environmental problems are witnessed across the globe, environmental awareness and consciousness are also noticed in the world (Straughan and Roberts, 1999). From the time environmental deterioration was observed, the topics of environmentalism, environmental concern, environmental attitude,

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[*] Assistant Professor, Department of Commerce, SNRL Jairam Girls College, Lohar Majra, Kurukshetra, Haryana, E-mail: karnikagupta7@gmail.com

[**] Professor, Department of Commerce, Kurukshetra University, Kurukshetra, Haryana, E-mail: profnsingh@gmail.com

environmental/ecological behaviour, socially responsible behaviour, green behaviour, eco-friendly behaviour, sustainable behaviour etc. attained attention and being chosen by researchers for their studies. Among these, a unique theme "perceived consumer effectiveness" abridged as PCE was seen associated with concern, attitude, behavioural intentions or behaviour. Likewise, several studies have worked on PCE in one or the other form.

PCE has been seen as a moderator between environmental attitude and behaviour (Berger and Corbin, 1992; Tan, 2011; Failla and Gopalakrishna, 2014) on the one hand; and on the other side, Kumar (2012) stated that PCE works between environmental intentions and behaviour. Besides, studies too exist which believe that PCE affects environmental concern (Kinnear et al., 1974) and environmental attitude (Altinigne and Bilgin, 2014). Therefore, it can be said that PCE is different from concern or attitude; and is operative as a determinant of these constructs. Ellen et al. (1991) has also presented this fact in their research. Aligning with this, certain academics too presented the facts that PCE directly determines environmental/ecological/socially responsible/green/sustainable behaviour (Ellen et al., 1991; Straughan and Roberts, 1999; Kumar, 2012; Genoveva, 2016; Aydin 2016/17).

In this way, it can be said that PCE is a significant contributor in the process of behaviour formation. It may have a direct or moderated effect. So, the importance of PCE increases to be studied for more explanations. Wesley et al. (2012) also stressed on the same point. Accordingly, this paper takes PCE as the subject matter and examines it on a sample of Indian consumers.

The rest of the paper is organized under seven sections. In second section, the substance of this paper that is "Perceived Consumer Effectiveness (PCE)" is elaborated upon. Third and Forth sections deal with literature review, purpose and methodology. Then, analyses have been presented under section five with three sub-sections. Section six concludes the whole discourse. Lastly, implications and further research directions are discussed in section seven.

PERCEIVED CONSUMER EFFECTIVENESS (PCE)

Perception is said to be a method by which physical sensations are selected, organized and interpreted to provide some meaning to them (D'Souza, 2005). Perception with regard to

environment protection and sustainability is popularized as perceived consumer effectiveness (PCE) in literature. Aligning with the problem of environmental pollution, Kinnear et al. (1974) defined PCE as a measure of extent to which respondents believe that an individual consumer can be effective in pollution abatement. With passage of time as environmental problems became wider, Roberts (1995) defined PCE as a measure of subject's judgment in the ability of individual consumer to affect environmental resource problems. Further, Straughan and Roberts (1999) stated that consumers' attitude and responses to environmental appeals are a function of their belief that they can positively influence the outcome of environmental problems, and this belief was referred to as PCE by them. It is also seen as an element of self-concept and as the output of a self-perception, self-evaluation process by Berger and Corbin (1992).

REVIEW OF LITERATURE

Certain studies which worked on PCE and included PCE as a variable in their research are reviewed here.

Kinnear et al. (1974) answered about ecologically concerned consumers and their profile including twenty predictor variables in which final predictor was perceived consumer effectiveness (PCE). It was interpreted that ecologically concerned consumers tended to score high in perceived consumer effectiveness against pollution, high in openness to new ideas, high in their need to understand the working of things and their intellectual curiosity (understanding) was satisfied. Also, they were found moderately high in their need to obtain personal safety.

Ellen et al. (1991) demonstrated that perceived consumer effectiveness (PCE) contributed for the determination of certain types of pro-ecological behaviours and defined it as different from environmental concern. Their study showed that differences in PCE are associated with differences in demographics and political affiliation. The results also suggested that motivating consumers to express their concern through actual behaviour is a function of increasing perceived consumer effectiveness to some extent.

Berger and Corbin (1992) tested perceived consumer effectiveness and faith in others as moderators of environmentally responsible behaviour. Three behavioural measures were

used which were consumer behaviours, willing to pay behaviour and regulatory support behaviours. Perceived Consumer Effectiveness was found a very influential moderator of attitude-behaviour relationship. Similarly, the variable measuring faith in the efficacy of others was found to moderate the degree and form of relationship between environmental attitude and support for regulatory actions.

Straughan and Roberts (1999) indicated that perceived consumer effectiveness (PCE) provided the greatest insight into ecologically conscious consumer behaviour. Additional constructs which were examined with PCE suggested that environmental segmentation alternatives are more stable than past profiles that have relied primarily on demographic criteria. So, psychographic criteria was defined more useful for profiling than demographic criteria.

Tan (2011) elaborated about the upward trend of environmental deterioration which had diverted the focus of research studies towards the environmental domains. On the one hand, he mentioned that if literature on this issue was considered, Value-Attitude-Behaviour (V-A-B) model remained popular in this field. On the other hand, he too pointed out that application of this model on green buying behaviour remained different from other general purchase-related behaviour; and calls about new researches in this field. Talking about the concept of perceived consumer effectiveness (PCE), it had been said that PCE had extensively been used in literature to explain the environmental attitude and behaviour. But, its role is limitedly researched on green buying behaviour if aligned with V-A-B model. So, in his work the author reviewed keystone theories and proposed an integrated framework to examine the role of PCE in the V-A-B model for future studies on green buying behaviour.

Kumar (2012) aimed to ascertain the determinants of purchasing behaviour for environmentally sustainable products in Indian context. Environmental knowledge was found positively and significantly related to the attitude towards environmentally sustainable products; however its relationship with purchase intentions was very weak and was not significant. Attitude was positively and significantly related to purchase intentions. Subjective norm was positively related to purchase intentions but statistically not significant. Perceived consumer effectiveness was also positively related to purchase intentions; and purchase intentions in turn was found significantly related to purchase behaviour.

Wesley et al. (2012) mentioned that due to increase in economic development and globalization Korean consumers' expectations of socially responsible businesses have also increased. But if, Korean consumers themselves are talked about, they are not highly aware of social responsibility issues with regard to their own consumption. They are also unconscious of current socially responsible activities by the corporations. Hence, the authors proposed that the practitioners of social responsibility need to understand the function of consumers' perceived effectiveness in encouraging socially responsible purchasing. Likewise, the paper examined whether Korean consumers are concerned about social responsibility. Accordingly, relationship of perceived consumer effectiveness, motivational attitudes, and socially responsible purchase behaviour was judged.

Altinigne and Bilgin (2014) determined how perceived consumer effectiveness (PCE) affected environmental attitudes. For the purpose, a questionnaire was used which was distributed at two Universities in Istanbul. The findings indicated that PCE had a significant effect on environmental attitudes, reflecting that students with high PCE had more positive attitudes toward environmentally conscious living and less affected from inconvenience of being environmentally friendly.

Failla and Gopalakrishna (2014) examined the effect of intentions, verbal commitment, emotions (Affect) and two moderators (Perceived Consumer Effectiveness: PCE and Faith in Others: FIO) on purchase (Actual Commitment) of environmentally preferable products. A direct impact of intentions was found aided by emotions (Affect) on actual commitment. PCE was found to be a positive moderator factor and FIO positively influenced both Affect and PCE.

Genoveva (2016) after stating about the threat of plastic waste in Indonesia investigated factors affecting consumers' green purchase behavior. A survey was conducted in two cities: Jakarta and Bekasi. The research concluded that Environment Awareness, Environment Knowledge, Environment Concern and Attitude, Perceived Effectiveness Consumers, and Consumers Perceived Responsibility significantly affect Green purchase Behaviour.

Aydin (2016/17) described that the use of environmentally friendly products had grown and many factors affected such usage. The study explained the influence of perceived consumer effectiveness, environmental concern, and environmental knowledge on green consumption

behaviour. A survey was conducted to green consumers in Istanbul. The results indicated that perceived consumer effectiveness, environmental concern, and environmental knowledge had a significant positive effect on green consumption behaviour.

Based on literature, it can be said that there is no dearth of research on the aspect of PCE, but there is a shortage in case of Indian consumers, and no study has separately worked on PCE of consumers. Consequently, this research fulfils this gap; and in this direction, the purpose and methodology are discussed next.

OBJECTIVE AND METHODOLOGY

More firmly, this paper purposed to study levels of PCE in Indian consumers and to investigate segments of consumers (if any) based on their perceived consumer effectiveness. For the same, data collected from 300 consumers (based on judgment sampling) from Ambala District from the State of Haryana are analyzed. The techniques used for analyses include: Correlations, Principal Component Analysis, Frequencies Distribution, Descriptive Statistics, Cluster Analysis and z-test for difference between two Means as an Inferential Technique.

ANALYSES AND INTERPRETATIONS

In order to investigate PCE, analyses has been completed in three phases, and the results are presented below in three sections:

Phase 1: Correlations and Principal Component Analysis

Firstly in phase 1, Principal Component Analysis is applied on the statements to validate the extent to which these statements describe PCE.

Table 1: Correlations, Tests of Adequacy and Sphericity

Bi-Variate Correlations					KMO and Bartlett's Test		
Variables	PCE1	PCE2	PCE3	PCE4			
PCE1	1.000				KMO Measure of Sampling Adequacy	0.693	
PCE2	0.254*	1.000					
PCE3	0.131**	0.377*	1.000		Bartlett's Test of Sphericity	Chi-Square	195.964
PCE4	0.251*	0.542*	0.410*	1.000		df	6
*P = 0.000; **p = 0.05						Sig.	0.000

Source: Authors' Calculation

At the outset, bi-variate correlations are analyzed. All the statements of PCE correlate significantly with each other with moderately high correlations in PCE2↔PCE4 [r=0.542], and PCE3↔PCE4 [r=0.410]. As suggested by Churchill et al. (2010), Kaiser, Maire and Olkin measure of sampling adequacy is found well above the suggested cut-off of 0.50, and Bartlett's Test of Sphericity is also significant. Thus, these statistics indicate that principal component analysis is preferable for the data.

Table 2: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.026	50.652	50.652	2.026	50.652	50.652
2	0.888	22.197	72.849			
3	0.630	15.757	88.606			
4	0.456	11.394	100.000			

Source: Authors' Calculation

The Eigen value and the latent root criteria for selecting the number of components have been used. As expected, the four statements resulted into one component in PCE, explaining 50.652 per cent of variance. It is confirmed by the first Eigen Value of 2.026. The explained variance fulfills the criteria of 50 per cent cut-off **(Churchill et al. 2010)**.

Table 3: Statements, Loadings and Reliability

Statements	Loadings	Variance Explained	Cronbach's Alpha
Environment Deterioration is not personally affecting my life, so it does not make any difference what I do separately [PCE1]	0.488	0.238	
It is worthless for the individual consumer to do anything for saving the environment [PCE2]	0.805	0.648	
While thinking about the possible solutions of environment protection, I think I cannot do anything individually [PCE 3]	0.685	0.469	0.662
It is useless to individually spend efforts for protection of environment [PCE 4]	0.819	0.671	

Source: Authors' Calculation

The loadings are displayed in table 3 which show the correlations of individual statement with the latent component (here PCE). Highest loading of 0.819 and 0.805 clarify that maximum variance of PCE4 and PCE2 (%=67.1 and 64.8) has been explained. The least contributing statement is PCE1. It has a loading of 0.488, thus small amount of its variance has been explained that is 23.8 per cent. But, all the statements significantly load on the component, and firmly measure perceived consumer effectiveness (PCE).

Phase 2: Exploration of Levels of PCE in Indian Consumers

As per prime purpose, levels of PCE has been explored by using descriptive statistics and frequencies distribution.

Table 4: Frequencies and Descriptive Statistics

Statements Variables	Frequency and Percentage	Frequency Distribution					Descriptive Statistics	
		Strongly Agree	Agree	Neutral	Dis-Agree	Strongly Dis-Agree	Mean	Std. Deviation
PCE1	N	45	26	32	46	151	3.77	1.504
	%	15.0	8.7	10.7	15.3	50.3		
PCE2	N	47	53	49	47	104	3.36	1.491
	%	15.7	17.7	16.3	15.7	34.7		
PCE 3	N	52	68	48	44	88	3.16	1.491
	%	17.3	22.7	16.0	14.7	29.3		
PCE 4	N	53	51	32	53	111	3.39	1.545
	%	17.7	17.0	10.7	17.7	37.0		
Overall PCE (PCE1+PCE2+PCE3+PCE4)							3.42	1.524

Source: Authors' Calculation

Table 5: PCE Variables and Inferential Statistics

Variables	Mean Differences	Standard Error of Mean	z-Statistics	p-Values
PCE1≈PCE2	0.410	0.122	3.353	0.001
PCE1≈PCE3	0.610	0.122	4.989	0.000
PCE1≈PCE4	0.380	0.124	3.053	0.002
PCE2≈PCE3	0.200	0.122	1.643	0.100
PCE2≈PCE4	0.030	0.124	0.242	0.808
PCE3≈PCE4	0.230	0.124	1.855	0.063

Source: Authors' Calculation

By observing table 4, it is obtained that majority of consumers are strongly disagree from PCE1, PCE2, PCE3, and PCE4. So, owing to the strongly disagree response, it can be said that greater part of consumers believe in their individual efforts that they can do something for environment protection.

Also, descriptive statistics from right hand side of the table presents a unique scenario. Only moderate levels of perceptions of consumes are vigilant by the mean values of overall PCE and its ingredients PCE1, PCE2, PCE3, and PCE4. Next, pairwise comparisons show significant differences between mean values of PCE ingredients; but, there has not been found any significant differences for PCE2≈ PCE3 and PCE2≈ PCE4. As a result, in total, consumers have a moderate level of perceptions about the success of their individual efforts for environmental cause.

Phase 3: Identification and Explanation of Clusters

In this section, cluster analysis has been performed on PCE to have a divide between consumers and obtaining the segments.
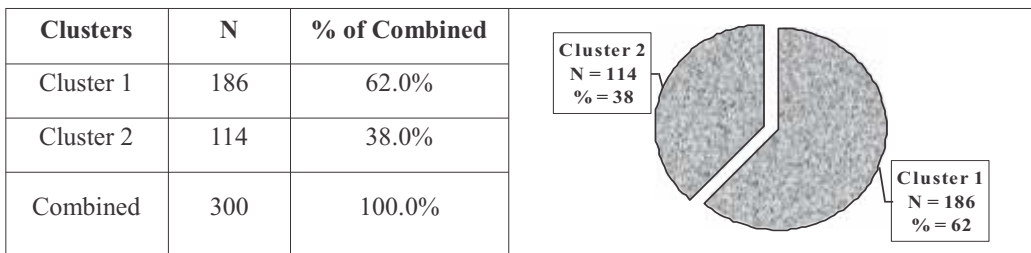
Table 6: Agglomeration Schedule

Stages	Cluster Combined		Coefficients	% Change in Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2			Cluster 1	Cluster 2	
291	8	14	0.125	--	279	288	296
292	7	18	0.156	24.800	285	274	295
293	1	3	0.176	12.821	290	271	297
294	6	15	0.323	83.522	284	289	298
295	5	7	0.396	22.601	287	292	298
296	8	9	0.491	23.990	291	286	297
297	1	8	0.976	98.778	293	296	299
298	5	6	1.547	58.504	295	294	299
299	1	5	4.091	164.447	297	298	0

Source: Authors' Calculation

Table 6 pinpoints that there were total 299 stages in the agglomeration schedule as there was a sample of 300 respondents. The results of last ten stages that are devised to retain the number of clusters are depicted in the table. The column labeled 'coefficients' displays squared Euclidean distance between these two respondents. One column which is marked as 'stage cluster first appears' point towards each step at which the respondents are combined before a particular stage. Last column 'Next Stage' implies the stage at which the respondents are combined with any other respondent after a particular stage.

Two columns of this table namely 'coefficients' and 'per cent change in coefficients' are significant to recognize the number of clusters based on the large increases in coefficients. It can be seen that percentage change in coefficients shows a mixed trend. Seeing at stage 299, there can be noted 164.447 per cent change in coefficient from its previous level. After this percentage change declines fast and at state 298, it is only 58.504 percent. Accordingly, basing on analysis from agglomeration schedule, two useful clusters can be selected to work upon in k-means clustering.

Table 7: Cluster Distribution and Figure 1: Cluster Depiction

Clusters	N	% of Combined	
Cluster 1	186	62.0%	
Cluster 2	114	38.0%	
Combined	300	100.0%	

Source: Authors' Calculation

Hierarchical Cluster Analysis suggested two clusters. It is found from two step cluster analysis that there are two clusters of consumers based on their PCE. Cluster 1 comprises 186 consumers (% = 62), and cluster 2 is a make of 114 consumers (% = 38). This cluster membership is highlighted in table 7, and also with pie diagram for more clarity (figure 1).

Next, table 8 reflects that cluster 1 has attained a higher mean value as compared to cluster 2 (4.128>2.270), and the mean differences are too found significant when tested with z-test for differences between two means. Figure 2 in which clusters are shown on x-axis, level of PCE on y-axis, and combined mean is presented by the reference line also attains that cluster 1 has
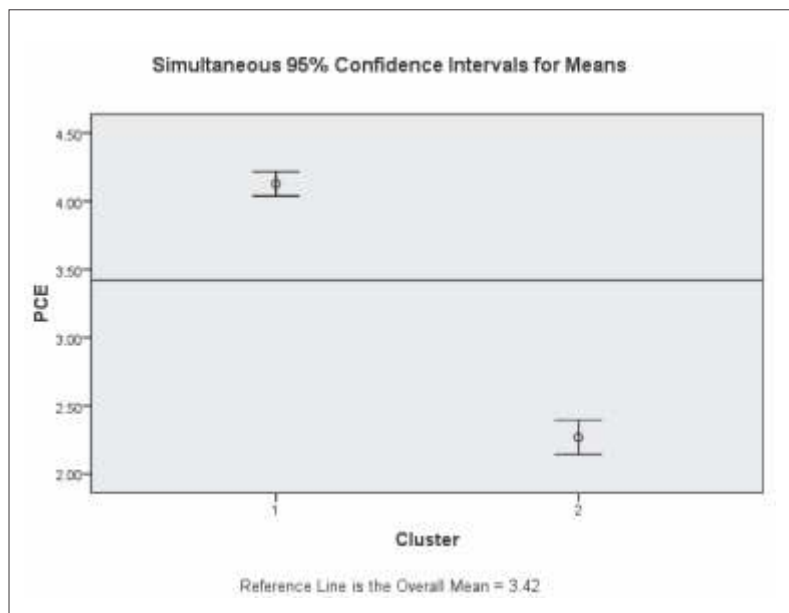
significantly higher mean than the combined mean value and mean of cluster 2 is significantly low from combined value. In this way, it can be said that consumers in cluster 1 has superior perceptions than those of in cluster 2. Accordingly, cluster 1 is labeled as '*Effective*', and cluster 2 as '*Ineffective*'. Now, these two clusters are defined broadly.

Table 8: Mean Differences between Clusters and Inferential Statistics

Clusters	Name of Clusters	Mean	Std. Deviation	Pairs	Mean Difference	Standard Error of Mean	z-Statistics	Significance
Cluster 1	Effective	4.128	0.535	Effective ≈ Ineffective	1.858	0.046	40.107	0.000
Cluster 2	Ineffective	2.270	0.598	Effective ≈ Combined	0.706	0.069	10.283	0.000
Combined		3.422	1.062	Ineffective ≈ Combined	1.152	0.070	16.370	0.000

Source: Authors' Calculation

Figure 2: Depiction of Overall Mean and Position of Clusters

Effective Consumers: Consumers in this group are named '*Effective'* because they seemed productive in terms of their PCE. Hence, they believe in initiatives and think that as individuals they can make efforts. They can understand that only efforts can reap fruits. Thus, they seemed controlled people and believe in their work. These consumers can very well understand that only initiatives can make a team behind. Perhaps these consumers believe in a well saying that a statute has never been erected in the honour of a critic, it has always been erected in the honour of an initiator.

Ineffective Consumers: These consumers are tagged '*Ineffective'* simply because they are out of effective category. As their mean value is very less, it can be said that from environmental view point, they are unproductive consumers. Where effective group may be a valuable asset, ineffective consumers behave like non-performing assets which produce nothing.

Up to this point in the paper, the purposes are achieved through analysis of collected data. Now, the whole discourse is concluded; and implications and directions which arise from the analyses are discussed.

CONCLUSION AND IMPLICATIONS

Taking everything into account, based on the results of principal component analysis, it is attained that all the statements notably measure consumer perceptions. It is found that consumers have only a moderate level of PCE on separate statements as well as when combined. Consequently, consumer perceptions are not so much encouraging. Indeed, when consumers are segmented by cluster analysis; a clear cut division of two clusters namely, Effective and Ineffective emerged in which former is having superior perceptions over later. Accordingly, it can be said that all consumers are not equal on the continuum of their PCE, rather there are divisions of them. First division is good from environmental viewpoint; but its counterfeit segment is disappointing. Although, majority of consumers in Effective segment are a sign that consumers may be engaged in environmental activities, but the Ineffective group needs push up so that they can be taken in the line of Effective segment.

Owing to the findings, the paper leaves certain questions: How an unproductive asset (ineffective consumers) can be converted into productive (effective consumers)? Even it is

not necessary that superior perceptions of Effective group get converted into environmental behaviour; then, how can it be done? Although, it has been an elaborated fact that perceived consumer effectiveness has a significant impact on environmental behaviour; but, this might be true only for some consumers not for others. Hence, this paper proposes a law requiring "protection by consumers" so that people perform their duties and responsibility for safeguarding environment. Also, the concept of environmental tax and polluter pays can be strengthened in India.

Further, the results can be more refined if other environmental aspects like attitude, intentions or behaviour are studied in combination with PCE in India. Future studies can become operative in this direction. It can be investigated whether the superior perceptions are converted into responsible behaviour or not? And if not, what could be done next.

REFERENCES

Altinigne, Nesenur and Bilgin, Zeynep (2014), "The Relationship between Perceived Consumer Effectiveness and Environmental Attitudes of University Students" International Marketing Trends Conference, At Venice, Volume: 13 [Available online at: file:///C:/Users/Dell/Downloads/2014Venice_MarketingTrends_Paper.pdf].

Aydin, Hatice (2016/17), "Some Determinants of Green Consumption Behaviour: A Study on Green Consumers", *Journal of Environmental Management and Tourism*, Vol. 7, Issue 4, pp. 609-618.

Berger, Ida E. and Corbin, Ruth M. (1992), "Perceived Consumer Effectiveness and Faith in Others as Moderators of Environmentally Responsible Behaviors," *Journal of Public Policy and Marketing*, Vol. 11(2), pp. 79 – 89.

Churchill, Gibert A., Iacobucci, Dawn and Israel, D. (2010), "*Marketing Research*", 4th Edition, Cengage Learning Editions, pp. 1 – 673.

D'Souza, Clare (2005), "Proactive Environmentalism: An Examination of the Australian Consumer Market", *Electronic Green Journal*, Issue 22, pp. 1-15.

Ellen, Pam Scholder; Wiener, Joshua Lyle and Cobb-Walgren, Cathy (1991), "The Role of

Perceived Consumer Effectiveness in Motivating Environmentally Conscious Behaviors", *Journal of Public Policy & Marketing*, Vol. 10, No. 2, pp. 102-117.

Failla, J. Thomas and Gopalakrishna, Pradeep (2014) "Moderator Role in Green Product Purchases," *Atlantic Marketing Journal*, Vol. 3, No. 1, pp. 14-22.

Genoveva (2016), "Factors Affecting Consumers' Green Purchase Behavior - An Empirical Study of Indonesia Pay Plastic Policy", *International Journal of Business, Economics and Law*, Vol. 10, Issue 2, pp. 31-36.

Kinnear, Thomas C., Taylor, James R. and Ahmed, Sadurdin A. (1974), "Ecologically Concerned Consumers: Who Are They?", *Journal of Marketing*, Vol. 38, pp. 20 -24.

Kumar, Bipul (2012), "Theory of Planned Behaviour Approach to Understand the Purchasing Behaviour for Environmentally Sustainable Products", Working Paper, *Research and Publications, Indian Institute of Management, Ahmedabad*, pp. 1-43.

Roberts, James A. (1995), "Profiling Levels of Socially Responsible Consumer Behavior: A Cluster Analytic Approach and Its Implications for Marketing", *Journal of Marketing – Theory and Practice*, Fall 1995, pp. 97 -117.

Singh, Narendra and Gupta, Karnika (2013), "Environmental Attitude and Ecological Behaviour of Indian Consumers", *Social Responsibility Journal*, Vol. 9, Issue 1, pp. 4-18.

Straughan, Robert D. and Roberts, James A. (1999), "Environmental Segmentation Alternatives: A Look at Green Consumer Behavior in the New Millennium", *Journal of Consumer Marketing*, Vol. 16, No. 6, pp. 558-575.

Tan, Booi-Chen (2011), "The Role of Perceived Consumer Effectiveness on Value-Attitude-Behaviour Model in Green Buying Behaviour", *Australian Journal of Basic and Applied Sciences*, Vol. 5, No. 12, pp. 1766-1771.

Wesley, Scarlett C.; Lee, Min-Young and Kim, Eun Young (2012), "The Role of Perceived Consumer Effectiveness and Motivational Attitude on Socially Responsible Purchasing Behavior in South Korea", *Journal of Global Marketing*, Vol. 25, Issue 1, pp. 29-44.